

Abstract

The invention relates to a method of measuring the two-dimensional potential distribution in CMOS semiconductor components and of determining two-dimensional doping distribution. It is an object of the invention to propose a method of measuring the two-dimensional potential distribution in CMOS semiconductor components and of determining the two-dimensional doping distribution by which it is possible to form a direct image in a transmission electron microscope of the two-dimensional doping distribution and of the two-dimensional potential distribution. The method in accordance with the invention is based upon the use of electron holography and, more particularly, of electron off-axis holography in a transmission electron microscope. Electron holography permits two-dimensional measurements of the phase of the electron wave in the transmission electron microscope. The phase image is directly proportional to the potential distribution in the spatial charge zone of pn-junctions in semiconductor structures.